identify him, as he probably has a variety of both. He claimed to be on his way to Albany.

Perhaps if he can be exposed all along the line, he may soon be rendered harmless. F. W. STAEBNER.

Westfield, Mass., Jan. 8.

The West Indian seal.

Mr. Henry L. Ward, a son of Prof. Henry A. Ward of Rochester, N.Y., has recently returned from a special trip to the Gulf of Mexico in search of the little-known West Indian seal, Monachus tropicalis, bringing with him a good series of skins and skeletons, including those of both sexes and a suckling. Professor Ward, who has been on the alert for several years for this, until recently, almost mythical species, on learning of the probable locality of a small colony of them, promptly organized, with his usual energy in such matters, an expedition to procure specimens, in which enterprise he was joined by Mr. Fernando Ferrari-Perez, naturalist of the Mexican geographical and exploring commission, who, with Mr. Ward, procured a schooner at Campeachy for a trip to the three little keys north-west of Yucatan known as The Triangles (Los Triangulos). Owing to bad weather, they had but three days at the keys, but their efforts were well rewarded; and the West Indian seal is now in a fair way to be soon represented in several of our leading museums. The only specimens hitherto known to be extant in collections are the one recently acquired by the U. S. national museum (see *Science*, iii. 752), and the imperfect skin without skull presented many years ago by Mr. P. H. Gosse to the British museum. So little was known of the species until recently, that even its generic relations were in doubt, its reference to the genus Monachus having been regarded as provisional.

The material obtained by Mr. Ward, at much risk and expense, having been kindly placed in my hands for description, I am able to throw some further light upon this interesting species. Its cranial as well as external characters show it to be unquestionably referable to the genus Monachus. The color of the animal proves to vary much with age. The young are at first wholly intense black, remaining of this color doubtless during their first year. As they become older, the color changes to lighter; the dorsal surface becomes grayish black, through a slight gray tipping to the black hairs, shading on the sides of the body into the yellowish white of the ventral surface. The front and sides of the muzzle, and the edges of the lower lip, become yellowish brown; the whiskers change from black or blackish to yellowish white, a few only of the shorter ones remaining dark, either wholly or only at the base. In the younger animals the whiskers are not only much darker than in the adult, but much longer and heavier.

The skull is depressed, broad, and heavy. In general proportions it differs from that of Phoca vitulina in the longer, more sloping, and much broader ante-orbital portion, and the much greater thickness of the inter-orbital region, and the auditory bullae are less swollen and relatively much smaller. The dentition is very heavy, the length of the largest molars being 16 mm., with a breadth of 10 mm. The molars are crowded, set somewhat obliquely to the axis of the jaw; the second, third, and fourth have one small accessory cusp before, and two behind, the larger or principal one. These are well marked in the younger or middle-aged specimens, but become worn and even wholly obliterated in old age. Gray's description of the dentition of the Mediterranean species (M. albiventer) applies in every particular to that of the present species.

The nails of the fore-feet are large and strong, the largest being from three-fourths of an inch to an inch in length; those of the hind-feet are rudimentary, being reduced to minute horny points, scarcely visible except on close examination.

The flat skin of the full-grown male measures about seven feet in a straight line from the end of the nose to the point of the tail, the free portion of which latter has a length of three inches. The adult female has a length of about six feet.

Mr. Ward obtained a young one only a few days old, and found nearly ripe foetuses in several of the females taken. This would indicate that the young are born in December.

The Triangles are about a hundred and fifty miles from the Alacrane Reefs, where the species was found in abundance by Dampier about two hundred years ago. Small colonies doubtless still exist on the uninhabited reefs and keys of the Gulf of Mexico and Caribbean Sea. It has been met with off the coasts of Cuba and Jamaica, and has been reported as an occasional visitor to the Bahamas and the Florida Keys.

Mr. Ward calls my attention to the fact that Columbus not only met with it in the West Indian waters, but that his sailors killed these seals for food, nearly four hundred years ago. It is therefore a remarkable fact that the first discovered American seal should be the latest one to become known satisfactorily to science.

The present notice is preliminary to a more elaborate account of the species now in preparation, which will be illustrated with plates of its osteological and external characters. The American museum of natural history of this city has secured skins of an adult male, an adult female, and a young example, and a fine adult male skeleton, which will soon be mounted for exhibition. J. A. ALLEN.

New York, Jan. 6.

Early forms of writing.

Your remarks (*Science*, viii. No. 202) on Dr. Brinton's paper relating to the early modes of writing must form my excuse for this note.

I have made some discoveries, since the publication of my 'Notes on certain Maya and Mexican manuscripts,' which seem to confirm Dr. Brinton's opinion that the mode of writing which he designates the 'ikonomatic system' was practised to some extent by the Maya scribes,—a fact I had noticed previous to seeing his paper. For example: I find on plate xvii. of the Codex Troano the name of a bird (*Kuch*, in Maya) designated by a compound hieroglyph consisting of two parts, one of which is Landa's letter-character *Ku*, the other the symbol for the cardinal point west, or *Chikin* (according to Rosny). The name of another bird (the quetzal or *Kukuitz*) is denoted simply by a duplication of Landa's *Ku*. A few other characters formed in the same way have been discovered. But, so far as determined, most of the characters are symbolic, where the object intended is designated by a single characteristic, the head being the part or feature usually selected to represent persons and animals. For ex-

ample: a human head with one or two curls of hair signifies a female; deities, as shown by Schellhas, are represented by the head with the peculiar features found in their figures. The bird above mentioned (*Kuch*) is generally represented by a head, with certain lines about the eye, used in the complete figure to indicate the species. An idol is denoted by the character a head, which Dr. Schellhas erroneously supposes to be the symbol for a certain deity. The symbol for game quadrupeds is a rabbit's head mounted on the *Kan* or corn symbol; that for game-birds, a turkey's head on the corn symbol; etc.

Inanimate objects are usually denoted by conventional symbols having as the chief idea some characteristic of the thing represented. For instance: the symbol for house, or hut, found in all the codices, has as its chief characteristics broken lines indicating the thatching, and perpendicular lines suggesting the posts.

I have determined the signification of one character in which color plays a part. This is the symbol for *Ekchuah*, the god of pedlers or travelling merchants. This is a basin-shaped character, indicating the half of a calabash (*Chu*, in Maya), surrounded by a heavy shading of black (*Ek*, in Maya). It is found accompanying the black deity in the Troano Codex.

A few of the written characters are truly phonetic, but my scant knowledge of the Maya language renders progress in this branch of the subject slow. That there are no true letter-characters, as supposed by Landa, must be conceded. I may add, in closing, that I have discovered in the Cortesian Codex the origin of this author's '*A*.' It is the symbol used to denote the turtle (*Aac*), the conventional representation of the head of this reptile, and is in no sense phonetic.

A paper explaining these and other discoveries has been prepared for the bureau annual, and is now in the hands of the printer. CYRUS THOMAS.

Youngsville, Penn., Jan. 10.

On the coloration of mammals.

I desire to call attention to the arrangements of the color-marks on the skin of mammals, and to attempt to show that some of them are correlated to the distribution of nerves and to the positions of the muscle-masses of the body.

The white stripe on the side of the trunk in Tamias is the region of distribution of the superficial branches of the intercostal nerves and those nerves in serial homology with them.

The white patches on the muzzle of the tiger answer to the distribution of the infra-orbital nerves.

The single black stripe on the withers of Equus taeniopus lies near the centre of the region of the scapula. In the tiger the abdominal stripes are in the same series with those on the flank. In the locality last named they range over the muscles and the depressions between them without regard to the anatomical conformation of the parts. On the anterior extremity it is quite different. In the lioness the depression between the radial extensor mass and the flexor mass is marked at the distal end of the region with a longitudinal black stripe which is about one-fifth the length of the fore-arm. The skin over the extensors of the carpus is marked by a number of spots, and that over the flexor mass by a few transverse bars. The contrast between the two divisions of the fore-arm is decided.

In both the lioness and the tiger the cervical mass and the gular region are separated by differences in coloration. Two oblique stripes are seen limited to the cervical mass. The depressions between the acromio-cephalic and the brachialis anticus muscles are marked by black stripes.

The general distribution of the spots and stripes on the skin over the scapula, and the muscles which are inserted into it and over the extensor aspect of the anterior extremity, form a separate group from those of the rest of the trunk.

The line of the malar bone of the tiger is distinguished by a broad, irregular bar. A more slender one lies vertically over the masseter muscle.

In addition to the above, it is found that the wrinkles and folds in one animal answer to the permanent skin-bands or pigment-lines in another. The dorsi-facial folds of Phacochoerus are in the same positions as the pigment-lines in the zebra The bands on the trunk of the nine-banded armadillo are the homologues of the transient folds of skin seen in the instantaneous photographs of the hog taken at the time when the limbs of the same side are at the nearest point one to the other.

The medio-dorsal stripe which is so often met with in mammals is probably a sequence of the general deep-lying cause which determines the longitudinal type of the vertebrate form.

The disposition for the neck, withers, and the anterior limb to be more hairy than is the remainder of the trunk, is probably associated with the localization of the marks on the anterior extremity being better marked than are those on the posterior. The fore-limb has connections with the head as exact as with the dorsum as far back as the origin of the latissimus dorsi. In the bison the shaggy surface corresponds quite accurately to the proximal part of the fore-limb and its extrinsic muscles.

A mammal, in leaving the ground, from the hind-limbs hunches up the withers in a conspicuous manner. This region is more thickly haired and more brightly colored in many bats than is the rest of the trunk. Now, in the bat the shoulders and neck are permanently hunched, for the fore-limbs are scarcely at all used for support. HARRISON ALLEN.

Philadelphia, Jan. 4.

Butterflies in southern Connecticut.

During the summer and autumn of 1884 and 1885, I was collecting butterflies in southern Connecticut. In the first season I found Pyrameis cardui very abundant, P. huntera comparatively rare, while of P. atlanta I saw only two specimens, both of which I secured. The next summer, on precisely the same ground and in the same time, I took all I wanted of P. atlanta, only two of the huntera, while I did not see a single specimen of P. cardui. I should be glad if some one would explain this. I do not imagine my collections could have been extensive enough to seriously affect the abundance of any of the species in the locality.

I might also say, that, of a large number of specimens of Argynnis idalia taken in the two seasons, a very great majority were females; and of the males, not one was in a perfect condition, most of them being badly torn and much faded. This would seem to indicate that they appeared before the females.

L. N. JOHNSON.

Evanston, Ill., Jan. 8.